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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/147,318	02/24/1999	MATS LEIJON	98470006-6X	1542

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OBLON SPIVAK MCCLELLAND
MAIER & NEUSTADT
1755 JEFFERSON DAVIS HIGHWAY
FOURTH FLOOR
ARLINGTON, VA 22202

EXAMINER

MULLINS, BURTON S

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 02/11/2002

22

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/147,318

Applicant(s)

LEIJON ET AL.

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

BURTON S. MULLINS
PRIMARY EXAMINER

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18 and 36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not clear that the specification enables “electrical contact” between the semiconducting layers and the insulator. See the rejection of this language in the following paragraph. It does appear, however, that the semiconducting layers contact the insulator.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitations “a solid insulation layer arranged to...be in electrical contact with said inner semiconducting layer...” and “said outer semiconducting layer...arranged to...be in electrical contact with said solid insulation layer” are vague and confusing. What is the point of describing the semiconducting layer as being in electrical contact with an insulator? An insulator by definition does not conduct electrical current.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 18-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck (US 3,014,139) in view of Elton et al. (US 4,853,565) and Grant (US 5,325,008). Shildneck discloses the claimed invention including a continuous winding drawn through first, second and third slots of an electromagnetic machine, e.g. a large turbo-generator (Fig.3), wherein the winding employs an improved form of flexible, insulated conductor for the laminated armature core of the dynamo-electric machine.

Shildneck does not disclose details of the winding cable structure; nor does Shildneck teach a spring member in the stator slot to reduce problems associated with vibration of the machine.

Elton teaches that it is known to have an electrical machine cable structure comprising an internal grading layer of semi-conducting pyrolyzed glass fiber layer in electrical contact with the cable conductor. In another embodiment, Elton teaches an electrical cable with an exterior layer of internal grading layer of semi-conducting pyrolyzed glass fiber in contact with an exterior cable insulator with a predetermined reference potential. Elton's cable winding minimizes the possibility of corona discharge, minimizes voids and maintains uniform and equal electric potential (c.2, lines 44-60).

Grant teaches spring members 16/26 disposed axially or radially along the stator winding in the slots for the purpose of maintaining the windings tight within the slots over the age of the machine (c.4, lines 7-13). Grant further teaches a method of installing the spring

members whereby the spring members are adhesively secured to flat surfaces, i.e. filler strips, and at a predetermined elevated temperature the adhesive breaks and the springs expand into a corrugated shape to apply load against the stator winding and wedges.

It would have been obvious to one having ordinary skill at the time of the invention to use the cable of Elton as the winding conductor in the stator of Shildneck to minimize the possibility of corona discharge; and furthermore to provide springs per Grant between the conductor(s) and the stator slots since such a modification would have prevented the conductor cables from movement and maintained the cables tight within the slots.

With regard to claim 32, it would have been obvious design choice to provide appropriate coefficients of thermal expansion for the insulator and semiconductor layers so as to prevent cracking and strain.

With regard to claims 21-24, Grant teaches an alternative method of inserting the ripple springs by first disposing filler strips in the space between the wedges and the stator conductors and then removing the filler strips so that the springs can be inserted (c.1, line 48-c.2, line 7).

5. Claims 18-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck (US 3,014,139) in view of Katz (US 4,533,789) and Grant (US 5,325,008). Shildneck discloses an improved continuous winding cable drawn through first, second and third slots of an electromagnetic machine, e.g. a large turbo-generator (Fig.3), wherein the winding employs an improved form of flexible, insulated conductor for the laminated armature core of the dynamo-electric machine.

Shildneck does not disclose details of the winding cable structure; nor does Shildneck teach a spring member in the stator slot to reduce problems associated with vibration of the machine.

Katz teaches a high voltage power cable comprising an insulation system including: inner semiconducting layer 11 surrounding wire bundle 10; solid insulation layer 12 surrounding an in “electrical” contact with the inner semiconducting layer 11; and an outer semiconducting layer 13 surrounding an in “electrical” contact with the solid insulation layer 12. The inner and outer semiconducting layers provide a uniform equipotential electrically conducting surface (c.1, lines 13-22; c.4, lines 55+; Figs.1-2). High voltage cables in the range of 345 KV are contemplated (c.3, line 54). As is well known in the art, such a cable construction smooths out electrical fields which accompany current flow through the conductor (c.1, lines 13-16). Also, the construction of Katz’s cable is inexpensive and reduces the chances of failure due to thermal expansion of the cable as it is subjected to high temperatures and wide temperature swings (c.3, lines 57-65).

Grant teaches spring members 16/26 disposed axially or radially along the stator winding in the slots for the purpose of maintaining the windings tight within the slots over the age of the machine (c.4, lines 7-13). Grant further teaches a method of installing the spring members whereby the spring members are adhesively secured to flat surfaces, i.e. filler strips, and at a predetermined elevated temperature the adhesive breaks and the springs expand into a corrugated shape to apply load against the stator winding and wedges.

It would have been obvious to one having ordinary skill at the time of the invention to use the power cables of Katz as the winding conductors in the stator of Shildneck since such a

Art Unit: 2834

cable would have been desirable due to its ability to withstand high temperatures and wide temperature swings and furthermore to provide springs per Grant between the conductor(s) and the stator slots since such a modification would have prevented the conductor cables from movement and maintained the cables tight within the slots.

With regard to claim 32, it would have been obvious design choice to provide appropriate coefficients of thermal expansion for the insulator and semiconductor layers so as to prevent cracking and strain.

With regard to claims 21-24, Grant teaches an alternative method of inserting the ripple springs by first disposing filler strips in the space between the wedges and the stator conductors and then removing the filler strips so that the springs can be inserted (c.1, line 48-c.2, line 7).

Response to Arguments

6. Applicant's arguments filed 11-23-01 have been fully considered but they are not persuasive. Applicant argues Shildneck is a not a "high voltage" machine. Applicant's specification defines a high voltage machine as one which operates at voltages in excess of 10 kV. Shildneck was described in the declaration of Mr. Robert Fenton to operate at voltages from 10kV to 15 kV (p.19, paragraph 43) and hence can be defined by applicant's own terms as a "high voltage" machine.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the

Art Unit: 2834

knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Elton's cable winding minimizes the possibilities of corona discharge, maintains resistivity value after impregnation, minimizes voids and maintains uniform and equal electric potential (c.2, lines 44-60); while Grant clearly teaches that it is advantageous to use springs to maintain the windings tight within the slots over the age of the machine (c.4, lines 7-13).

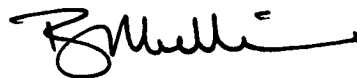
With regard to applicant's assertion that Elton's cable "would not be suitable as a winding in an electric machine," the examiner points out that Elton clearly intends the insulated conductors for use as windings in a dynamoelectric machine (abstract; c.4, line 50-c.6, line 4; c.8, lines 45-60; Figs.1-6).

Art Unit: 2834

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez, can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
February 6, 2002